

Comprehensive Data Management of WRAP Emissions Data

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ABSTRACT

The Western Regional Air Partnership (WRAP) is comprised of representatives from cooperating western states, tribes, and federal agencies. One of WRAP's primary goals is to develop technical and policy tools to assist its stakeholders in development of State Implementation Plans (SIPs), Tribal Implementation Plans (TIPs), and meeting requirements of the U.S. Environmental Protection Agency's (EPA's) Regional Haze Rule (RHR). An important component of this process is the ability to track pollutant emissions over time. WRAP has approached analysis of emissions data via two integrated avenues.

The Emissions Data Management System (EDMS) is a central repository of emissions inventory data. The inventories contained within the EDMS consist of multiple pollutants from Point, Area, Mobile, Biogenic, and Fire inventory sectors for 2002 and 2018 (addition of 2005 data is in progress). This, and addition of future inventories, will allow for tracking trends in air quality control across WRAP.

The Technical Support System (TSS), designed as a Web-based portal of comprehensive technical data and analytical results, houses SMOKE-processed emissions data. TSS-designated emissions sectors and inventory years are similar, though not identical, to those in the EDMS.

Integration of the EDMS and TSS is currently underway. The EDMS remains as an independent warehouse of detailed emissions data. Enhancements to the TSS data presentation tools allow users access to EDMS data, and the ability to compare native emissions inventories and emissions modeling data.

This paper will describe the methods for obtaining emissions data using the newly integrated EDMS and TSS data management systems.

INTRODUCTION

Under federal clean air laws, states and tribal areas that are not in compliance with National Ambient Air Quality Standards (NAAQS) are required to provide documentation or plans describing how they will become compliant with NAAQS. The U.S. EPA's Regional Haze Rule requires states, tribes and other federal programs to develop plans to mitigate pollution that causes visibility impairment in Class I Areas across the country. Air quality planners need supporting data and data presentation tools to prepare these plans. The WRAP has developed such tools on the TSS, integrating a number of different information resources under one Web-based umbrella. The data resources that feed into the TSS include:

- Visibility Information Exchange System (VIEWS) – The VIEWS Web site stores aerosol and optical visibility data collected by the Interagency Monitoring of Protected Visual Environments (IMPROVE) and cooperating programs to track and characterize haze across the United States. The TSS was developed on top of VIEWS technology and shares many structural features.
- Emissions Data Management System (EDMS) – The WRAP EDMS is an emissions inventory data warehouse and Web-based application that provides a consistent approach to regional emissions tracking to meet the requirements for SIP and TIP development and periodic review and updates.
- Fire Emissions Tracking System (FETS) – The FETS is a database with a Web interface for planned and unplanned fire events. Users can view fire data on-screen with a mapping tool and query the database for downloads of data into model-ready formats and CSV or DBF formats.
- WRAP Regional Modeling Center (RMC) – The WRAP RMC assists state and tribal agencies in conducting regional haze analyses over the western U.S. by operating regional scale, three-dimensional air quality models that simulate the emissions, transformation, and transport of pollutants and the effects on visibility in WRAP Class I Areas.
- Causes of Haze Assessment (CoHA) – The CoHA Web site is an online report that answers questions about the chemical components that cause regional haze, relationships of haze to meteorology, the emissions that cause haze, and the effects of previous and future emissions reductions on the worst and best visibility levels.

This paper describes how to access WRAP regional emissions, which are stored in the EDMS database and are available using the newly designed and enhanced data reporting tools on the TSS.

BACKGROUND

Emissions Data Management System (EDMS)

The Emissions Data Management System (EDMS) is an emissions inventory data warehouse and Web site (www.wrappedms.org) that provides regional WRAP emissions tracking to meet the requirements for SIP and TIP development, EPA regional haze rule, as well as support for modeling, tracking, and data analyses. The emissions inventories contained within the EDMS consist of visibility impairing pollutants that are released into the atmosphere by different sources. These include:

- Oxides of nitrogen (NO_x)
- Sulfur dioxide (SO₂)
- Particulate matter (PM)
- PM with an aerometric diameter of less than or equal to 10 or 2.5 micrometers (PM₁₀/PM_{2.5})
- Elemental carbon (EC)
- Organic carbon (OC)
- Volatile organic compounds (VOC)
- Carbon monoxide (CO)
- Methane (CH₄)
- Ammonia (NH₃)

The emissions source categories that make up the inventory consist of:

- Point or stationary sources
- Area/non-point sources
- On-road mobile sources
- Off- or non-road mobile sources
- Fires
- Biogenic sources

The information contained in the EDMS is provided via a joint effort among the states, counties and tribal entities that make up the data providers located within the WRAP region. The WRAP Emissions Forum is responsible for oversight in the development of emissions tracking tools and quality assurance of these emissions data inventories. WRAP has contracted with Air Resource Specialists, Inc. (ARS), and Air Sciences, Inc. for the Web hosting and database development (provided by ARS) and the quality control and analysis (provided by Air Sciences) of these emissions data.

Each entity that contributed to the EDMS system has made a major effort to make the information as accurate as possible. Complete inventories often are provided by multiple agencies, take substantial time to prepare, and undergo revisions resulting in lag time between when the emissions occurred and when they are available. The WRAP entities regularly review data in the EDMS to update missing data and correct data problems as they are identified.

Technical Support System (TSS)

The Technical Support System (TSS), supported and maintained by the Cooperative Institute for Research in the Atmosphere (CIARA) and other partners, has been developed to provide access to comprehensive technical data and analytical results prepared by WRAP Forums and Workgroups in one location. The data, results, and methods displayed on the TSS are intended to aid air quality planners in preparation, completion, evaluation, and implementation of the regional haze implementation plans and other western air quality analysis and management needs.

The data acquisition tools available on the TSS access data from several air quality data sources using a single data warehouse. The design of the TSS allows users to view and analyze datasets of different origin in a uniform, integrated manner with a common set of tools and Web services. This streamlines the decision-making process, allowing air quality planners to focus on strategies instead of the details of data management and manipulation.

INTEGRATION

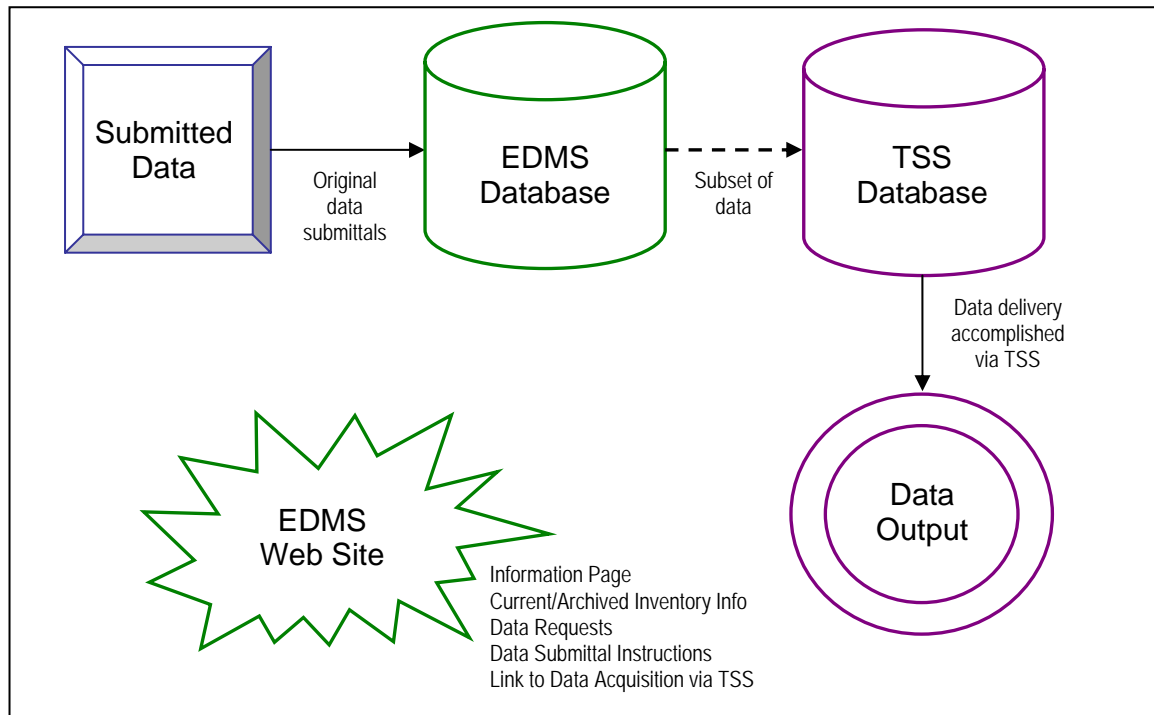
The original EDMS Web interface was a stand-alone site, independent from the TSS. It was limited in its use as a data reporting and comparison tool, as there was no convenient way to compare pre-modeled emissions data with the SMOKE-processed modeling results. The graphical and spatial display tools were also limited. Users largely familiar with the TSS were looking for a more streamlined way of displaying and reporting summary emissions data. Based on a survey of registered EDMS users, many respondents stated a desire to make the EDMS more like the TSS, and have the EDMS linked to the TSS to allow data comparisons. One of WRAP's goals became leveraging existing TSS tools to present EDMS data via standard reports, an Ad-Hoc query tool, and a mapping protocol, including a distance tool. Inclusion of EDMS data in the TSS structure make it more accessible and intuitive to users with TSS experience.

Integration of the EDMS database with the TSS Web application benefits data users and the WRAP by combining the strengths of each application; making the EDMS database a useful data

storage and quality assurance mechanism for all detailed WRAP emissions data, while using the strength of the TSS to provide users with raw summary emissions data that are more accessible, robust, and less prone to error.

The EDMS still requires an independent Web presence for all of the supporting documentation and information related to the native emissions inventories. Figure 1 presents the relationship of the EDMS database, the EDMS Web site, and the TSS.

Figure 1. Roles of the EDMS database, EDMS Web site, and TSS.



INTEGRATION STEPS COMPLETED

EDMS Web Site Home Page

A newly designed informational home page (Figure 2) continues to give EDMS a unique Web presence, providing a variety of EDMS related information including:

- EDMS background information
- Inventory description information
- Availability of current data (e.g., 2005 data upload status, publicly available and/or archived data inventories)
- Pollutant descriptions (e.g., clarification of PM categories, how EDMS data may differ from the TSS data)
- Data submittal and QC processes
- Frequently Asked Questions
- Links to data reporting and review tools on the TSS

This type of information was previously scattered across many different areas of the application and was difficult to find. A concise, straightforward information page gives users a reference point for all EDMS related information, not directly involved with obtaining data.

Figure 2. EDMS Web site home page.

 **WRAP edms**

HOME CONTACT

You are here: EDMS > Home

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Welcome to the WRAP EDMS Web Site

The Emissions Data Management System (EDMS) is an emission inventory data warehouse that provides a consistent and comparable approach to regional emissions tracking to meet the requirements for State Implementation Plan (SIP) and Tribal Implementation Plan (TIP) development and periodic review and updates across the Western Regional Air Partnership (WRAP) region. The EDMS serves as a central regional emissions inventory database to facilitate the data collection efforts for regional analysis of air quality in the West, including modeling, tracking and data analyses. The EDMS is the central repository for the data from the WRAP region that is used to prepare and implement regional haze plans to meet the requirements of the United States Environmental Protection Agency's (EPA) regional haze rule (RHR). The emission inventories contained within the EDMS consist of pollutants that are released into the atmosphere by different sources. The emission source categories contained in the EDMS include:

- Point or stationary sources;
- Area/non-point sources;
- On road mobile sources;
- Off- or non-road mobile sources;
- Fires;
- Windblown dust; and,
- Biogenic sources.

The development of the information contained in the EDMS is a joint effort between the Committees, Forums, and Workgroups within the WRAP, and the State, County, EPA and Tribal air pollution control agencies that provide much of the emission inventory data. Each agency that contributed to the EDMS system has made a major effort to make the information as accurate as possible. However, as with any system with millions of pieces of information originating from multiple sources, it is anticipated that some information may not be up-to-date or may not be accurate. Due to the manner in which emission information is reported, collected, and managed there can be a substantial lag time between when the emissions occurred and the reporting of the information to the EDMS. The WRAP entities will be making regular updates to the EDMS to correct data problems as they are identified.

**EDMS Reporting Tools
are now available on**
 **WRAP tss**

EDMS Database

The EDMS database has become purely a data repository housing the various WRAP emissions inventories. Data from these inventories are routinely uploaded to the TSS server and are available via TSS tools: the Emissions Review Tool and the Emissions Inventory Reports.

DATA RETRIEVAL AND REVIEW

EDMS Summary Data Available via TSS Emissions Review Tool

The TSS Emissions Review Tool was developed to allow users to retrieve and graph SMOKE-processed emissions used for regional modeling. Data are presented graphically by parameter, emissions inventory ID, source category, region and/or county. (To access the Emissions Review Tool, go to <http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx>, click on the “Emissions and Source Apportionment” icon at the bottom of the page, then select “Emissions Review Tool” from the list of links).

The Emissions Review Tool has been recently modified to allow selection of EDMS data independent of or along with SMOKE-processed data. The following EDMS inventories are available:

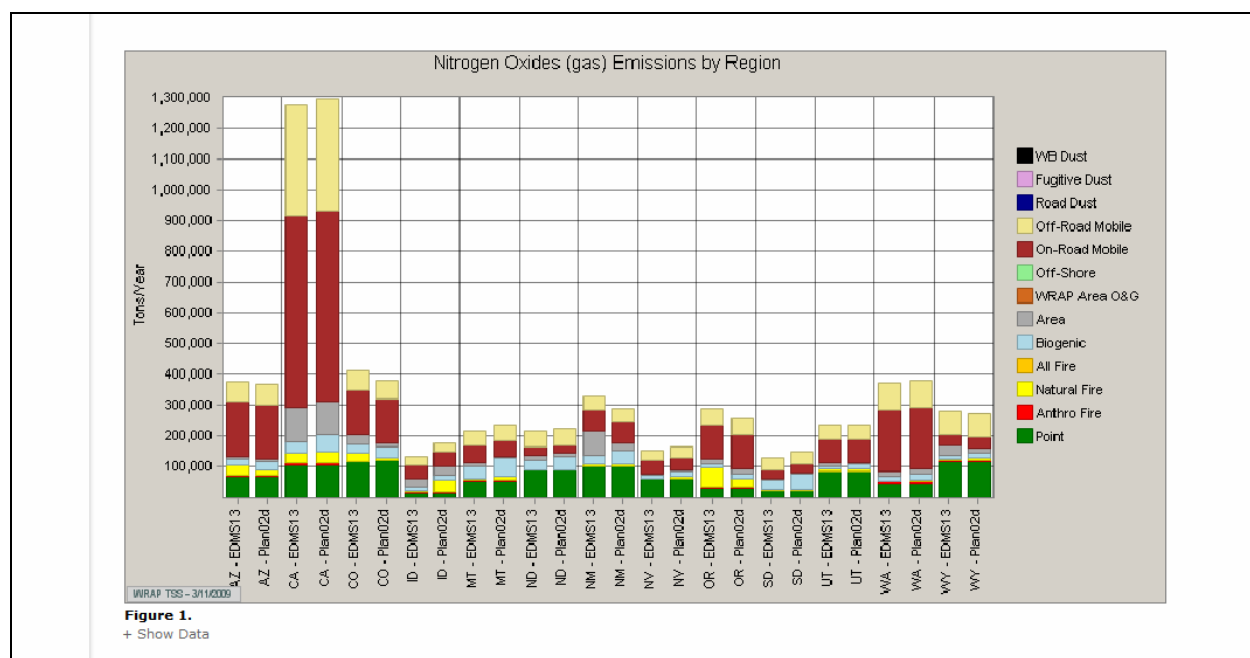
- “2002 version 1” (Inventory 6)
- “2002 version 2” (Inventory 2)
- “2002 version 3” (Inventory 9)
- “2002 version 4” (Inventory 13)
- “2018 PRP version 1” (Inventory 12)

Comparison of these two data sets will yield similar, though not identical results. The EDMS data set contains native emissions submitted by state, local, and tribal agencies, while SMOKE-processed data are modeled. Additionally, the parameters and source categories contained in EDMS raw inventories and SMOKE-processed inventories differ slightly. Figures 3 and 4 present the selection of and side-by-side graphical comparison of EDMS native emissions and SMOKE-processed data for 2002.

Figure 3. TSS interface for EDMS and SMOKE-processed data comparison.

The screenshot displays the TSS Emissions Review Tool interface. It features a 'Parameter' dropdown menu with options like Sulfur Dioxide, Nitrogen Oxides (gas), and Primary Organic Aerosol. Below this is the 'Emissions Scenario' section, which includes three radio buttons: 'SMOKE Gridded Emissions (from TSS)', 'Emissions Inventories (from EDMS)', and 'Comparison'. The 'Comparison' option is selected and circled in red. Below the radio buttons, a text box shows '2000-04-Baseline (plan02d) & EDMS 2002 Version 4 (inv. 13)'. To the right of the 'Emissions Scenario' section are three columns: 'Source Categories' (listing Point, Anthropogenic Fires, Natural Fires, Biogenic, Area - Area Sources, On-Road Mobile, Off-Road Mobile, Road Dust, Fugitive Dust, and Wind Blown Dust), 'Region' (listing states like AZ - Arizona, CA - California, CO - Colorado, etc.), and 'County' (with a search box). At the bottom of the interface, a red text box states: 'Emissions inventories from the EDMS are preliminary and should be used with caution.'

Figure 4. Graphical results for EDMS and SMOKE-processed data comparison.



EDMS Emissions Inventory Reports

Retrieval of more detailed EDMS emissions inventories are a function of the Emissions Inventory Reports, available via the TSS Web application (<http://vista.cira.colostate.edu/tss/edms.aspx>). Available reports range from high-level summary information to very specific facility or fire data.

Users interested in high-level summary data can choose the “Totals for all Sectors” report (Figures 5 and 6). This report sums each pollutant (tons per year) by county and sector for the selected geographic area. It also includes a count of the number of records in each total for inter-regional comparison. This helps illustrate the difference between a small county with less than twenty reported sources and small pollutant totals, versus a very large county with hundreds of sources and very high concentrations of pollutants.

Figure 5. EDMS Emissions Inventory Reports interface.

Figure 6. EDMS Emissions Inventory Reports “Total Report for all Sectors” results.

Selected Report: Totals for All Sectors																						
All Sectors: (P)oint (A)rea (D)ust (M)obile (N)on-road Mobile (F)ire (B)ioogenic																						
Values are in Tons Per Year																						
Selected FIPS: state_tribe_fips + county_fips in ('129' '145')																						
SECTOR	STATE	TRFSTATE	TRIBE	NAME	COUNTY	COUNTY_NAME	RECORDS	VOC	NOX	SO2	PM_FIL	PM_PRI	PM10_FIL	PM25_FIL	PM10_PRI	PM25_PRI	PM_CON	NH3	CO	EC	OC	CH4
A	46	SOUTH DAKOTA	99	MINNEHAHA	CO		96	5411.239	1552.109	2511.225	0	0	613.5631	92.23376	1058.489	534.0168	93.40423	80.78269	2851.363	0	0	0
A	46	SOUTH DAKOTA	83	Lincoln County			76	1007.15	126.433	186.8727	0	0	105.8261	63.29635	223.4121	180.6635	7.494775	12.77841	1015.384	0	0	0
AF	46	SOUTH DAKOTA	99	MINNEHAHA	CO		1584	11.92593	5.020004	0.695962	0	18.01797	0	0	17.7259	16.94593	0	2.563955	127.0895	4.447953	7.637968	9.003986
AF	46	SOUTH DAKOTA	83	Lincoln County			1584	11.92593	5.020004	0.695962	0	18.01797	0	0	17.7259	16.94593	0	2.563955	127.0895	4.447953	7.637968	9.003986
B	46	SOUTH DAKOTA	99	MINNEHAHA	CO		1	3202.8	294.1	0	0	0	0	0	0	0	0	753.6	0	0	0	0
B	46	SOUTH DAKOTA	83	Lincoln County			1	3334.1	293.2	0	0	0	0	0	0	0	0	725.6	0	0	0	0
D	46	SOUTH DAKOTA	99	MINNEHAHA	CO		7	0	0	0	0	0	6985.75	1397.141	10862.43	2010.521	0	0	0	0	0	0
D	46	SOUTH DAKOTA	83	Lincoln County			7	0	0	0	0	0	3153.368	630.6587	5850.428	1046.639	0	0	0	0	0	0
M	46	SOUTH DAKOTA	99	MINNEHAHA	CO		96	2033.385	3555.377	106.604	0	0	0	0	92.84717	72.89995	0	115.6924	30721.49	43.42232	41.51329	0
M	46	SOUTH DAKOTA	83	Lincoln County			96	553.2355	1231.618	36.85913	0	0	0	0	36.16591	28.91367	0	35.01678	9089.564	17.88789	15.49111	0
N	46	SOUTH DAKOTA	99	MINNEHAHA	CO		219	851.7088	1939.338	273.5767	0	0	0	0	200.5757	191.3379	0	1.292466	11476.3	136.5338	47.47952	0
N	46	SOUTH DAKOTA	83	Lincoln County			219	167.7179	698.8562	109.985	0	0	0	0	87.81196	84.41526	0	0.447494	1659.434	63.48169	18.32555	0
P	46	SOUTH DAKOTA	99	MINNEHAHA	CO		17	444.22	147.21	496.36	0	42.61	0	0	42.21	0	0	0	25.14	0	0	0

Information for stationary point sources and fire data can be presented with varying levels of detail. Point source data can be downloaded cataloged by facility name (including options for details for stack and/or emissions release points), by Source Category Code (SCC), and future enhancements will include the ability to retrieve data based on BART-eligibility. Figures 7 through 9 display the “Point Source by SCC” report selection and results.

Figure 7. EDMS Emissions Inventory Reports interface for point source by SCC report.

The screenshot shows the WRAP tss Emissions Inventory Reports (EDMS) interface. The page title is "Emissions Inventory Reports (EDMS)". Below the title, it says "Export EDMS data for selected Inventories and Sectors, States and/or Counties, or Tribes." The "Report Selections" section has a dropdown menu set to "(Inv. 9) 2002 version 3 inc. Fire data". Below this, there are two radio buttons: "Totals Report for all Sectors" and "Sector Specific Reports", with the latter being selected and circled in red. The "Sector" dropdown is set to "POINT" and the "Reports" dropdown is set to "Point Source by SCC". Below these, there is a section for "States and Tribes" with instructions: "Select all States and Tribes or select one or more individual States and, optionally, one or more counties and/or one or more individual Tribes, then click the Continue button. Click the Clear button to remove selections." There are three columns of lists: "States" (02 ALASKA, 04 ARIZONA, 06 CALIFORNIA, 08 COLORADO, 16 IDAHO, 30 MONTANA, 32 NEVADA, 35 NEW MEXICO, 38 NORTH DAKOTA, 41 OREGON, 46 SOUTH DAKOTA, 49 UTAH, 53 WASHINGTON, 56 WYOMING), "Counties" (5 APACHE CO, 7 COCHISE CO, 9 COCONINO CO, 11 GILA CO, 13 Graham County, 15 Greenlee County, 16 La Paz County, 17 MARICOPA CO, 19 Mohave County, 21 NAVAJO CO, 23 PIMA CO, 25 PINAL CO, 27 Santa Cruz County, 29 YAVAPAI CO), and "Tribes" (101 Confederated Tribes of the Umatilla Reservat, 143 Confederated Tribes of the Umatilla Reserva, 513 Cortina Indian Rancheria of Wintun Indians c, 202 Crow Tribe of Montana, A17 Curyung Tribal Council, 405 Fond du Lac Band of the Minnesota Chippew, 604 Fort Mojave Indian Tribe of Arizona, Californi, 614 Gila River Indian Community of the Gila Rive, F21 Hualia Village, S12 Klawock Cooperative Association, 577 La Posta Band of Diegueno Mission Indians, N03 Native Village of Buckland, B23 Native Village of Kongiganak, F28 Native Villane of Minto). At the bottom of the lists are "Continue" and "Clear" buttons.

Figure 8. EDMS Emissions Inventory Reports interface SCC selection screen.

The screenshot shows the WRAP tss Emissions Inventory Reports (EDMS) interface, specifically the "Select SCCs" screen. The page title is "Emissions Inventory Reports (EDMS)". Below the title, it says "Export EDMS data for selected Inventories and Sectors, States and/or Counties, or Tribes." The "Report Selections" section has a dropdown menu set to "Select SCCs", which is circled in red. Below this, it says "Current Selections: Point Source by SCC for Inventory 9 for FIPS '17' '614'". Below this, there is a section for "Select all SCCs categories or one or more SCC levels, then click the continue button." There is a checkbox for "Select all SCCs". Below this, there are four dropdown menus for SCC levels: "SCC-L1: 10 External Combustion Boilers", "SCC-L2: 102 Industrial", "SCC-L3: 102005 Distillate Oil", and "SCC-L4: 10200501 Grades 1 and 2 Oil". At the bottom of the dropdowns is a "Continue" button.

Figure 9. EDMS Emissions Inventory Reports point source by SCC report results.

Selected Inventory: (Inv. 9) 2002 version 3 inc. Fire data									
Selected Report: Point Source by SCC									
Sector: POINT									
Values are in Tons Per Year									
Selected FIPS: (state_tribe_fips + county_fips in (13) or state_tribe_fips in (614))									
STATE	TFSTATE	TFCOUNTY	COUNTY_NAME	SCC	SCC_DESC	VOC	NOX	SO2	PM_FIL
4	ARIZONA	13	MARICOPA CO	10200501	External Combustion Boilers - Industrial, Distillate Oil - Grades 1 and 2 Oil	0.4335	5.3765	0.3555	0
						PM_PRI	PM10_FIL	PM25_FIL	PM10_PRI
						0	0	0.3815	0.0954
						PM25_PRI	PM10_CON	NH3	CO
						0	0	1.1585	0
						EC	OC	CH4	
						0	0	0	

Fire emissions data can be displayed in annual tons for a selected region, displayed in tons per month by fire type or fuel type, or displayed with hourly resolution for specific periods of time. Figures 10 through 12 show the hourly fire report interface and data results.

Figure 10. EDMS Emissions Inventory Reports episodic fire report selection.

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Emissions Inventory Reports (EDMS)

Export EDMS data for selected Inventories and Sectors, States and/or Counties, or Tribes.

Report Selections

Select Date Range

(Inv. 9) 2002 version 3 inc. Fire data

Totals Report for all Sectors

Sector Specific Reports

Sector: FIRE

Reports: Fires occurring during selected date range

States and Tribes: Select all States and Tribes or select one or more individual States and, optionally, one or more counties and/or one or more individual Tribes, then click the Continue button. Click the Clear button to remove selections.

Select all States and Tribes

States

Counties

Tribes

02 ALASKA

04 ARIZONA

06 CALIFORNIA

08 COLORADO

16 IDAHO

30 MONTANA

32 NEVADA

35 NEW MEXICO

38 NORTH DAKOTA

41 OREGON

46 SOUTH DAKOTA

49 UTAH

53 WASHINGTON

56 WYOMING

37 Delta County

39 DENVER CO

41 Dolores County

43 Douglas County

45 Eagle County

47 Elbert County

49 EL PASO CO

51 FREMONT CO

53 Garfield County

55 Gilpin County

57 Grand County

59 Gunnison County

61 Hinsdale County

63 Huerfano County

281 Arapahoe and Shoshone Tribes of the Wind

F05 Arctic Village

206 Assiniboine and Sioux Tribes of the Fort Pe

201 Blackfeet Tribe of the Blackfeet Indian Rese

568 Cabazon Band of Cahuilla Mission Indians o

181 Coeur d'Alene Tribe of the Coeur d'Alene Re

203 Confederated Salish & Kootenai Tribes of th

124 Confederated Tribes and Bands of the Yakai

101 Confederated Tribes of the Colville Reservat

143 Confederated Tribes of the Umatilla Reservat

513 Cortina Indian Rancheria of Wintun Indians c


202 Crow Tribe of Montana

A17 Curyung Tribal Council

Continue

Clear

Figure 11. EDMS Emissions Inventory Reports episodic fire report date selection screen.



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Emissions Inventory Reports (EDMS)

Export EDMS data for selected Inventories and Sectors, States and/or Counties, or Tribes.

Report Selections

Select Date Range

Current Selections: Fires occurring during selected date range for Inventory 9 for FIPS '45'

Select a date range, then click the continue button.

Start Date: 06/08/2002

End Date: 06/08/2002

Continue

Please note: Fire data queries can result in large amounts of data. Please limit the number of locations and/or restrict the date range.
Complete fire data sets are available for download from the [Fire Emissions Joint Forum](#) page on the WRAP Web Site.

Figure 12. EDMS Emissions Inventory Reports episodic fire report results.

[illegible]

Similar selections and reports are available for the remaining sectors. Area, biogenic, and mobile sources are all categorized by SCC. Dust reports are a special report type, which summarize PM emissions using WRAP-defined dust-related SCCs and contain data also available using the area reports.

Additional Data Retrieval

In addition to the “standard reports” offered on the Emissions Inventory Reports Web page just described, reports with other content and formatting are available. All originally submitted data sets are stored in the EDMS database, so if a user is interested in NIF format data, data from an archived inventory, or some other special case data request the user would use the “contact us” feature of the EDMS Web site and such data would be provided.

FUTURE WORK

Future Inventories

EDMS developers are working in concert with the release of the new EPA Consolidated Emissions Reporting Schema (CERS). Beginning with the 2008 inventories, emissions data will be fully quality assured using the new schema structure and rules. All incoming data sets are accepted manually via direct submittal (see the “Submit Data” link on the EDMS home page) and stored within the EDMS database production tables. Pertinent information from the production tables is regularly incorporated with the TSS.

Mapping Tool

An Alpha version of a mapping tool, using Google Maps, is currently in development and will be available for review by the Emissions Forum. This tool will allow the user to:

- Show the locations of point sources in relation to county/state/tribal and Class I Area boundaries.
- Show geographical reference information, such as roads, cities, rivers, and lakes.
- Retrieve summary emissions data for any chosen county or facility, providing a spatial display of summary emissions data.
- Calculate the distance from a facility to a Class I or Tribal Area. This will help identify which facilities are subject to more stringent controls due to their proximity to the Class I or Tribal Area.

Figures 13 and 14 present preliminary products of the mapping tool, currently in development.

Figure 13. Map of facilities near Glacier National Park (Class I Area).

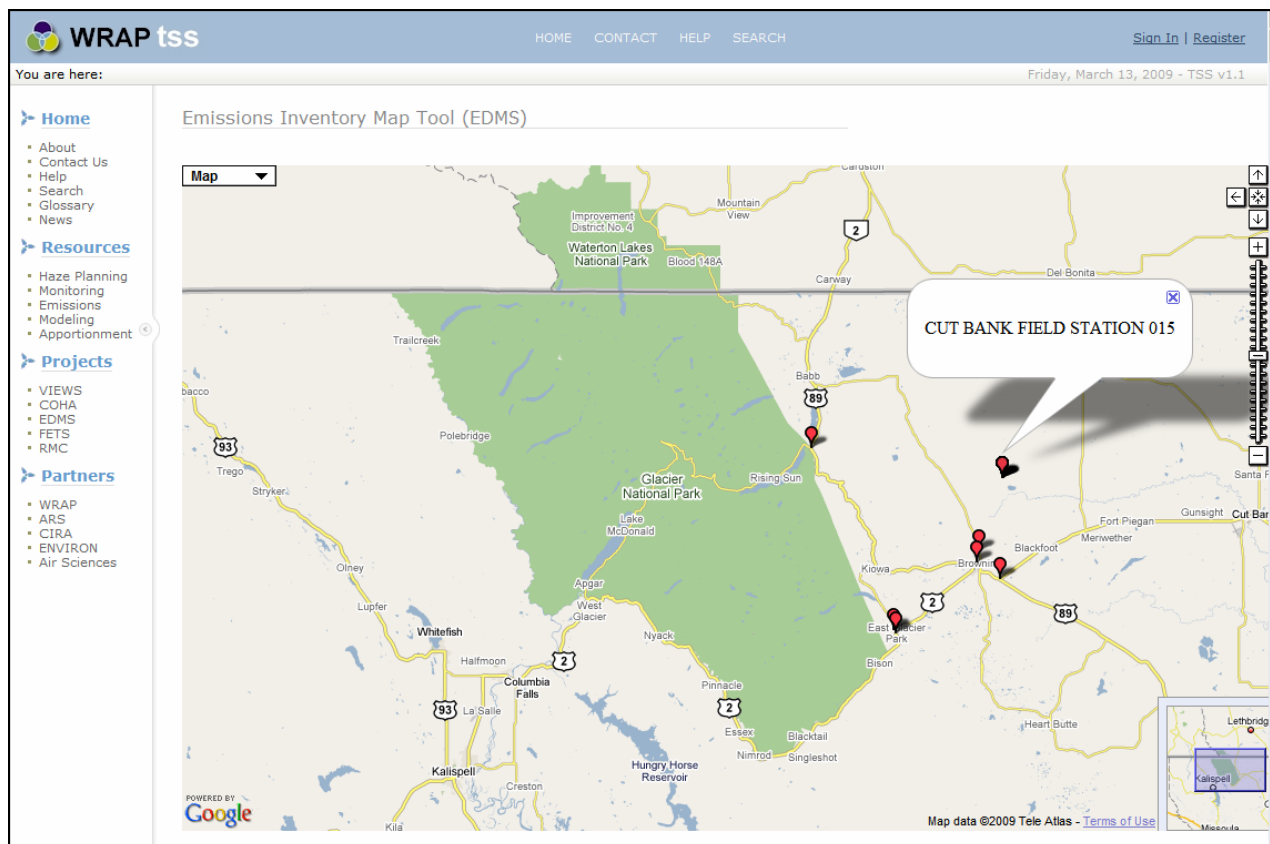
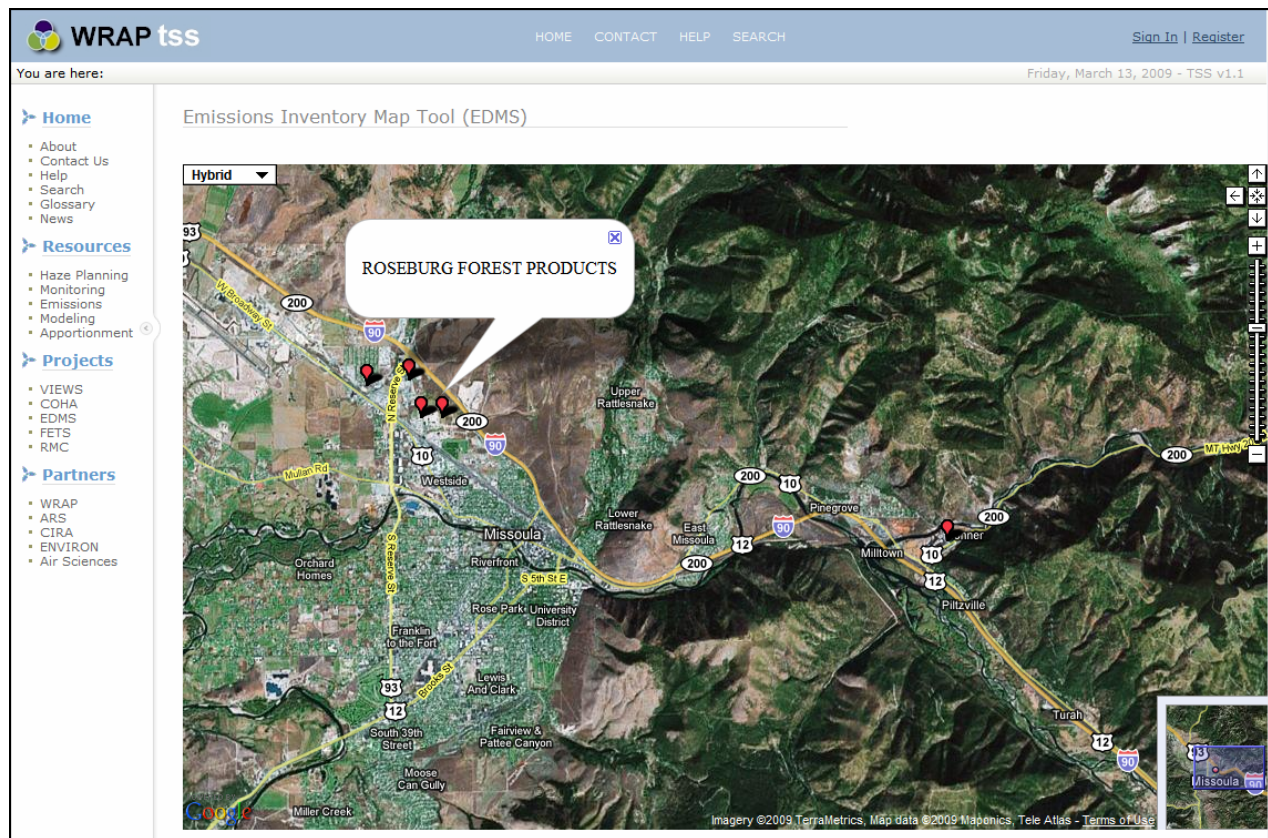


Figure 14. Hybrid map of point facilities near Missoula, MT



CONCLUSIONS

The WRAP has developed a useful emissions database and web interface to meet its goals of assisting member states assemble high quality regional inventories for future modeling efforts and track emissions trends related to air quality control, while adapting its inventory handling processes to comply with upcoming changes in EPA NEI Data submittals. The recent integration of the EDMS with the TSS has already significantly improved users' data access and reporting options. The EDMS/TSS integration is scheduled to be completed later this year.

KEY WORDS

Western Regional Air Partnership (WRAP)
Emissions Data Management System (EDMS)
Technical Support System (TSS)
Emissions Inventory
State Implementation Plan (SIP)
Tribal Implementation Plan (TIP)
Regional Haze Rule (RHR)